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IDENTITY OF THE BEAN MOUSE OF LEWIS AND CLARK

BY VERNON BAILEY

For over a century the ground beans or wild peanuts taken by the Indians of the upper Missouri Valley from the caches of some little animal have been known and made use of by travellers, explorers, and naturalists, but the animal which laid up these valuable food stores has only recently been identified. It proves to be an unnamed meadow mouse of the *Microtus pennsylvanicus* group.

In 1804 Lewis and Clark obtained from the "Ricaras" (Arikara Indians) "a large rich bean which they take from the mice of the prairie which discover and collect it."¹ Later they reported artichokes taken from the stores of mice by their Indian woman, and while Coues in a footnote credits these stores to pocket gophers, they were more probably the collections of the mice² which commonly store the beans, artichokes, and other roots together in underground cavities. Other explorers give passing mention to the mouse stores used by the Indians as food, and writing in 1845 Father De Smet says: "The earth pea and bean are also delicious and nourishing roots found commonly in low and alluvial lands. The above named roots form a considerable portion of the sustenance of these Indians during winter. They seek them in places where mice and other little animals, in particular the ground squirrel, have piled them in heaps."³

The extent to which these beans have been used by the Indians as food is evidently greater than has been generally supposed. Some of the Dakotas at Cannon Ball, North Dakota, have told me of gathering several bushels each autumn from the mouse stores, and both Indians and whites greatly prize them as a rich and delicious food. They are large, fleshy beans produced on underground shoots of a trifoliate bean vine, *Falcata comosa*.

The artichokes stored with the beans are the tubers of a wild sunflower (*Helianthus tuberosa*) also growing abundantly on the rich bottomlands of the river valleys. They too are a valuable food and much used by the Indians, and are gathered from the ground where they grow as well as from the mouse collections.

¹ Lewis and Clark Journals, Coues, Vol. I, p. 161, 1893.

² Lewis and Clark Journals, Coues, Vol. I, p. 263, 1893.

³ Life and Travels of De Smet, Vol. II, p. 655, 1905. See also Dr. Melvin R. Gilmore, Uses of Plants by the Indians of the Missouri River Region. Ann. Rept. Bur. Amer. Ethnology for 1911 and 1912, p. 95, 1919.

All efforts to determine which of the fifteen species of so-called mice of that region was responsible for the storing of the beans and artichokes have previously failed. Neither Indians nor white men who were familiar with the mice and their stores could agree on which was the storer even when they were shown specimens of all the species of mice, and their descriptions differed so widely as to add confusion rather than enlightenment.

The Biological Survey field work in North Dakota has usually closed before the storing season begins, but in 1919 the work was so planned that I could remain late and make a special effort to get the mice with their stores. On October 30, at Cannon Ball, I found a small cache of beans and artichokes which I secured and also the mice with them. One was caught in a trap in a runway leading to the cache and one was taken alive in my hands as it ran out of the cavity where the stores were found not far from a soft nest, a few inches below the surface of the ground.

While several other small rodents may also store the beans and artichokes the indications point to this as the one principally concerned in the accumulation of such food stores as are found along the Missouri River valley. Many specimens of these mice had been previously collected, so it was only necessary to connect the species with the stores, and somewhat to my surprise it proved to be a previously unrecognized subspecies of which I already had a description in manuscript. Fortunately this discovery was made in time to give the new form the name long used for it by the Indians.

In working out the range of the *Microtus pennsylvanicus* group in North Dakota, I find specimens from numerous localities from the western part of the State that can not reasonably be referred to the large dark *M. p. pennsylvanicus* of the Eastern States, the little form *M. p. drummondi* of Canada and central North Dakota, nor to the dark gray *M. p. modestus* of the Rocky Mountain Region, although these three forms approach and evidently intergrade. A large pale form, most resembling *modestus*, is found to occupy the badland region of western North Dakota and eastern Montana. It occupies an extensive and well defined faunal subdivision of the Upper Sonoran and Transition Zones in the arid badland area of the northern Great Plains. While the limits of its range have not been fully worked out, the most typical and strikingly marked specimens are from the sagebrush and badland area of the Upper Missouri and Yellowstone Valleys. My first acquaintance with the species was in 1913, when on the side of a badland butte

west of the Missouri River, about 10 miles south of Williston, I caught a specimen which I could not identify. Other specimens in the Biological Survey collection taken at Sentinel Butte, Glen Ullin, Oakdale, Fort Clark, Mandan, Bismarck, and Cannon Ball, in North Dakota; and at Glendive, Wibaux, Ekalaka, Capitol, Elgin, Johnson Lake, near Highwood Mountains, Billings, and Fort Custer in Montana, prove to be of this form. The large series and broad range represented enables me to select a type from a central locality where the characters are comparatively uniform. The subspecies may be known by the following description:

***Microtus pennsylvanicus wahema*⁴ subsp. nov.**

BEAN MOUSE

Hetunka of the Dakota Indians (Drs. Beede and Gilmore).

Type, from Glendive, Montana. No. 212370, U. S. National Museum, Biological Survey collection, adult male. Collected by Remington Kellogg, May 8, 1916. Collector's No. 425.

General characters.—In size slightly smaller than *Microtus pennsylvanicus* or *M. p. modestus* and with relatively narrower skull. Conspicuously larger than *M. p. drummondi* and with relatively heavy skull compared with the very delicate, slender skull of that species. Paler than any other member of the group except *M. breweri* of Muskeget Island, which it closely resembles in the general ashy gray tone.

Color.—In short, fresh, summer pelage, back buffy gray; sides clear gray or slightly tinged with buff; under parts, feet, and lower surface of tail light gray or buffy white; upper surface of tail dusky gray. *Winter* pelage long and soft with buffy gray tips to the hairs of upperparts; underparts white or slightly creamy; tail sharply bicolor. In faded winter pelage, color ashy gray with little trace of buffy tinge. *Young* buffy gray, but little darker than adults, except the tails and feet which are more plumbeous.

Cranial characters.—Skull noticeably narrower and slenderer than in *pennsylvanicus* and *modestus*, but almost as long and quite as heavy in structure. Both the braincase and the zygomatic arches are noticeably compressed to give the skull its narrow appearance.

Measurements of type specimen.—Total length, 178 mm., tail vertebræ, 43; hind foot, 20. *Skull*: basal length, 27; nasals, 7.6; zygomatic breadth, 15.4; mastoid breadth, 13; alveolar length of upper molar series, 6.8.

⁴ Omaha name meaning "to bury," given on the authority of Dr. Melvin R. Gilmore. *Intshunga wahema* "the burying mouse," from this habit of storing food.